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RESEARCH ARTICLE

Antibiotic Drug Utilization and Evaluation in Pediatric Patients

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ABSTRACT:
OBJECTIVES: To estimate the use of antibiotics in pediatric patients and categorize them according to the pediatric population on the basis of age, gender, chief complaints received, disease diagnosed, commonly preferred dosage form, average amount antibiotics prescribed per patient. **Methods:** This prospective study was conducted between December 2016 to April 2017 at "Sri Baby clinic" in Chennai. All children between 0 and 18 years who were examined because of the infectious disease that were enrolled. The population study was categorized in to several categories. Based on gender, age, chief complaints, disease diagnosed, etc. The divided population in each category is further quantified and expressed as percentage of the population. The obtained statistical data is represented in the form of pi-chart. The percentage of population falling under each category is noted and reported. **Reports:** Total of 100patients. Majority of the pediatrics patient were male 53 (53%) In the study, the total percentages of male and female Pediatric patients were 53% and 47%. Study population the age was categorized into 4 groups such as Neonates (from birth-1 month), infant (1 month-24 month), child (2years-11years), adolescent (12 years-18 years). most of the children's Disease diagnosed with upper respiratory tract infections 46 (46%), and gastroenteritis 23 (23%). 4 antibiotics used 2patients (2%), 3 antibiotics used 2 patients (2%), 2 antibiotics used 29 patients (29%), 1 antibiotics used 67 patients (67%). Route of administration antibiotics, oral 84 patients (84%), parental 09 patients (9%), topical applications 12 patients (12%). Chief complaints of patients most commonly fever 47 patients (47%), cough 36 patients (36%), cold 51 patients (51%), vomiting 23 patients (23%). Most used antibiotics Cephalosporins 65%, Quinolones 16%, Beta lactam antibiotics 11% (Table 7). **Conclusion:** Narrow spectrum antibiotics were prescribed for upper respiratory tract infections, Gasteroentirities, etc. This study showed that most commonly prescribing narrow spectrum antibiotics was Cephalosporins. The study highlights the need for development and implementation of relevant, diagnosis-specific prescribing of the antibiotic as per the guideline for the pediatric patients.

KEYWORDS: Pediatrics, antibiotics, drug utilization, cephalosporins.

INTRODUCTION:

Pediatrics is a branch of medicine that deals with the medical care for infants, children, and adolescents [(1)]. Antibiotics are the substances that are been produced by the bacteria which has the capacity to inhibit the other microorganism at minimal concentration.

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Infectious diseases are one of the major causes of mortality in pediatric patients. Antibiotics, is used to treat the underlying causes of infectious diseases[(2)]. Antibiotics are most commonly used to treat various infections such as upper respiratory infections, hypersensitivity, etc. The rational use of the antibiotics can be combatted using the proper prescribing of the drugs[(3).] Appropriate use of antibiotics drastically reducing illness and death rate of infectious disease. Antibiotics are compounds produced by bacteria and fungi which are having the capability of killing or inhibiting, the growth of other microorganisms at very

low concentration[4]. Antibiotics are one of the most commonly prescribing drugs for pediatric patients[5]. Antibiotics are only effective against the bacterial infection. It is not effective against the infection caused by the virus[6]. Before prescribing antibiotics to the patients for the infectious disease, the prescriber must know the actual cause of infection. Whether that infection was caused by bacteria or virus[7].

The antibiotics do not have serious adverse effects. Common side-effects include soft stools (faeces), diarrhoea, or mild stomach upset such as feeling sick (nausea)[8]. Less commonly, some people have an allergic reaction to an antibiotic and some have died from a severe allergic reaction - this is very rare[9].

Antibiotics can kill off normal defense bacteria which live in the bowel and vagina. This may then allow thrush or other bad bacteria to grow[10].

MATERIALS AND METHODS:

This prospective observational study was conducted between December 2016 to April 2017 at "Sri Baby clinic" in Chennai. All children between 0 and 18 years who were examined because of the infectious disease that were enrolled. The population study was categorized in to several categories. Based on gender, age, chief complaints, disease diagnosed, etc. A specially designed data entry form was used to enter all patients' details like patient name, age; gender, chief complaints received, disease diagnosed with, etc. were collected.

The divided population in each category is further quantified and expressed as percentage of the population. The obtained statistical data is represented in the form of pi-chart. The percentage of population falling under each category is noted and reported.

RESULTS:

Table 1-Gender wise Distribution

Gender	No. of patients (n=100)	Percentage of the patients
Male	53	53%
Female	47	47%

Table 2

Age	Category	No. of patients (n=100)	Percentage of patients
1day - 30 days	Neonates	01	1%
1month - 24 month	Infants	44	44%
2years – 11 years	Children	52	52%
12yers – 18years	Adolescents	03	3%

Age wise distribution

Table 3-Disease diagnosed in pediatric patients

Disease diagnosed	No. of patients (n=100)	Percentage of patients
Upper respiratory tract infection	46	46%
Gastroenteritis	23	23%
Pyrexia	6	6%
Acute sinusitis	6	6%
Bronchiolitis	5	5%
Acute otitis media	3	3%
Sepsis	2	2%
Gluteal abscess	1	1%
Rashes	1	1%
Muscle pain	1	1%
Rabies	1	1%
Pharyngitis	1	1%
Aphthous ulcer	2	2%
Conjunctivitis	1	1%
Athlete's foot	1	1%

Table 4- Patient receiving no. of antibiotics

No. of antibiotics	No. of patients N=100	Percentage of patients
1	67	67%
2	29	29%
3	2	2%
4	2	2%

Table 5-Various antibiotic dosage forms

Dosage forms	No. of patients N=100	Percentage
Oral	84	84%
Parentral	09	09%
Topical applications	12	12%

Table 6-Chief complaints

Chief complaints	No. of patients	Percentage of patients
Fever	47	47%
Cough	36	36%
Cold	51	51%
Vomiting	23	23%
Loose motion	11	11%
Septic wound	2	2%
Ear pain	3	3%
Abdominal pain	11	11%
Runny nose	3	3%
Gluteal abscess	1	1%
Dog bite	1	1%
Loss of appetite	3	3%
Itching all over the body & rases	1	1%
Leg pain & swelling	2	2%
Injury to the head	1	2%
fungal infection	2	2%
Fefrail fits	1	1%
Nose block	1	1%
Acute tonsillitis	2	2%
Infection on the eye	1	1%
Ulcer on the mouth	2	2%
Head ach	2	2%
Vitamin deficiency	3	3%
Wheezing	1	1%
Wax on ear	1	1%

Table 7-Antibiotics prescribed for Pediatric Patients

Narrow spectrum antibiotics		
Antibiotics class	**No. of patients N=100**	**percentage of patients**
Beta lactam antibiotics	11	11%
Sulfonamides	2	2%
Aminoglycosides	1	1%
Cephalosporines	65	65%
Quinolones	16	16%
Macrolides	2	2%
BROAD SPECTRUM ANTIBIOTICS		
Azoles	3	3%

DISCUSSION:

Antibiotics are an essential part of the modern medicine and play a pivotal role both in the prophylaxis and treatment of infectious diseases and are among the drugs most commonly prescribed for children. The inappropriate use of antibiotics can lead to development of resistance, super infection, and adverse drug effect and can burden the healthcare system. Pediatric antibiotic use is a major concern in terms of public health. Infants and children are among the most vulnerable population groups to contract illness; because of this, the use of antibiotics has become a routine practice for the treatment of Pediatric illness.

Total of 100 patients. Majority of the pediatrics patient were male 53 (53%) In the study, the total percentages of male and female Pediatric patients were 53% and 47%. (Table 1)

Total of 100 study population the age was categorized into 4 groups such as Neonates (from birth-1 month), infant (1 month-24 month), child (2years- 11years), adolescent (12 years-18 years). (Table 2)

Total of 100 Patients, most of the children's Disease diagnosed with upper respiratory tract infections 46 (46%), and gastroenteritis 23 (23%). (Table 3)

Total of 100 Patients, 4 antibiotics used 2patients (2%), 3 antibiotics used 2 patients (2%), 2 antibiotics used 29 patients (29%), 1 antibiotics used 67 patients (67%) (Table 4)

Total of 100 patients, route of administration antibiotics, oral 84 patients (84%), parental 09 patients (9%), topical applications 12 patients (12%) (Table 5)

Chief complaints of patients most commonly fever 47 patients (47%), cough 36 patients (36%), cold 51 patients (51%), vomiting 23 patients (23%) (Table 6)
Total of 100 patients most used antibiotics Cephalosporins 65%, Quinolones 16%, Beta lactam antibiotics 11% (Table 7)

CONCLUSION:

Study conclude that oral route was mostly preferred than any other route. Narrow spectrum antibiotics were prescribed frequently for upper respiratory tract infections, Gastroenteritis, etc. This study showed that most commonly prescribing narrow spectrum antibiotics was Cephalosporin. The study highlights the need for development and implementation of relevant, diagnosis-specific prescribing of the antibiotic as per the guideline for the pediatric patients.

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